

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently Amended) A chemical-mechanical polishing slurry for shallow trench isolation comprising:

an aqueous abrasive solution, which is a mixture of deionized water, polishing particles, and a polishing particle dispersant; and an aqueous additive solution for increasing the removal selectivity, which is comprised of deionized water, 0.001 to 5 weight % of a poly(meth)acrylic acid polymer, 0.001 to 4 weight % of a nitrogen-containing organic cyclic compound, and 0.001 to 3 weight % of an amine-group compound, wherein 100 parts by weight of said aqueous abrasive solution is mixed with 50 to 300 parts by weight of said aqueous additive solution, and wherein said nitrogen-containing organic cyclic compound is one or more compounds selected from the group consisting of 1,3,5-triazine, 1,3,5-triazine-2,4,6-triol(cyanuric acid), 1,3,5-triazine-2,4,6-trichloride(cyanuric chloride), 1,3,5-triazine-2,4,6-trithiol(trithiocyanuric acid), 1,3,5-triazine-2,4,6-trithiol sodium salt, 1,3,5-triazine-2,4,7-trithiol trisodium salt nonahydrate, 3,5,7-triamino-s-triazolo[4,3-a]-s-triazine, 1,3,5-triacryloylhexahydro-1,3,5-triazine, 2,4,6-triaryloxy-1,3,5-triazine, triallyl-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione, 5-azacytidine, 5-azacytosine, 4-amino-1-β-D-arabinofuracyl-1,3,5-triazine-2(1H)-one, cyanuric fluoride, 2-chloro-4,6-dimethoxy-1,3,5-triazine, 2,4,6-triallyloxy-1,3,5-triazine, 2,4,6-triphenyl-1,3,5-triazine, 2-chloro-4,6-diamino-1,3,5-triazine, melamine, 2,4,6-tri(2-pyridyl)-1,3,5-triazine, 2,4,6-tris(1'-aziridinyl)-1,3,5-triazine, 1,2,4-triazine-3,5(2H,4H)-dione(6-azuranyl), 6-aza-2-thymine, 6-aza-2-thiothymine, 6-aza-2-thiouridine, 6-azauranyl, 3-amino-5,6-dimethyl-1,2,4-triazine, 3-(2-pyridyl)-5,6-diphenyl-1,2,4-triazine, 3-(2-pyridyl)-5,6-bis(5-sulfo-2-furyl)-1,2,4-triazine disodium salt trihydrate, 3-(2-pyridyl)-5,6-diphenyl-1,2,4-triazine p,p'-disulfonic acid monosodium hydrate, and 5,6-di-2-furyl-3-(2-pyridyl)-1,2,4-triazine.

2. (Previously Presented) The chemical-mechanical polishing slurry for shallow trench isolation of claim 1, wherein said aqueous abrasive solution is comprised of said deionized water, 0.01 to 30 weight % of said polishing particles, and 0.1 to 10 weight % of a surfactant.

3. (Cancelled)

4. (Currently Amended) The chemical-mechanical polishing slurry for shallow trench isolation of claim 3 1, wherein said polishing particles are one or more compounds selected from the group consisting of ceria, alumina, silica, and titania.

5. (Previously Presented) The chemical-mechanical polishing slurry for shallow trench isolation of claim 4, wherein said polishing particles have a size of 0.002 to 10 micrometers.

6. (Currently Amended) The chemical-mechanical polishing slurry for shallow trench isolation of claim 3 1, wherein said surfactant is one or more compounds selected from the group consisting of a polyacrylic acid ammonium salt, polymethacrylic acid ammonium salt, polyacrylic acid amine salt, polymethacrylic acid amine salt, poly(ethylene-co-acrylic acid) ammonium salt, poly(ethylene-co-acrylic acid) amine salt, poly(ethylene-co-methacrylic acid) ammonium salt, and poly(ethylene-co-methacrylic acid) amine salt.

7. (Previously Presented) The chemical-mechanical polishing slurry for shallow trench isolation of claim 6, wherein the molecular weight of said surfactant is 1,000 to 1,250,000.

8. (Currently Amended) The chemical-mechanical polishing slurry for shallow trench isolation of claim 3 1, wherein said poly(meth)acrylic acid polymer is one or more compounds selected from the group consisting of poly(acrylic acid), poly(methacrylic acid), poly(ethylene-co-acrylic acid), and poly(ethylene-co-methacrylic acid).

9. (Cancelled)

10. (Currently Amended) The chemical-mechanical polishing slurry for shallow trench isolation of claim 3 1, wherein said amine-group compound is one or more compounds selected from the group consisting of tetramethylammonium hydroxide, tetramethylammonium hydroxide pentahydrate, tetramethyl ammonium fluoride, tetramethylammonium fluoride tetrahydrate, tetramethylammonium chloride, tetramethylammonium bromide, tetramethylammonium iodide, tetramethylammonium nitrate, tetramethyl ammonium sulfate hydrate, tetramethylammonium acetate, tetramethylammonium carbonate, tetramethylammonium formate, tetramethylammonium silicate, tetramethylammonium tetrafluoroborate, tetramethylammonium cyoacetate, tetramethylammonium triacetoxyborohydrate, tetramethylammonium borohydride, tetramethylammonium (1-hydroxyethylidine) pentacarbonyl chromium, tetramethylammonium hexafluorophosphate, tetramethylammonium hydrogen phythalate, and tetramethylammonium hydrogen sulfate.

11. (Previously Presented) The chemical-mechanical polishing slurry for shallow trench isolation of claim 1, wherein up to 500 parts by weight of said deionized water is added with respect to the amount of said aqueous abrasive solution.

12. (Previously Presented) The chemical-mechanical polishing slurry for shallow trench isolation of claim 1, wherein the pH of said chemical-mechanical polishing slurry is adjusted to be within the range of 6 to 8 by using one or more compounds selected from the group consisting of hydrochloric acid, sulfuric acid, nitric acid, potassium hydroxide, and ammonia.